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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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03/16/2004

Toshihisa Takeyama

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT

PAPER NUMBER

1795

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DELIVERY MODE

03/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/802,143	Applicant(s) TAKEYAMA, TOSHIHISA	
	Examiner Martin J. Angebrannt	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-10 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The response of the applicant has been read and given careful consideration. Responses to the arguments of the applicant are presented after the first rejection to which they are directed.

The rejection based upon Application No. 11/201,815 (US 2006/0040185) is withdrawn based upon the proper terminal disclaimer.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 18-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The disclosure of the specification (prepub) is the following.

Detail Description Paragraph - DETX (22):

[0086] Further, a cross-linking agent (D) provided with a functional group capable of reacting with the reactive group of the binder compound (A) provided with reactive groups, which is indispensable component of the holographic recording composition, is not specifically limited provided being capable of reacting with the reactive group of the binder compound (A), and, for example, utilized can be a cross-linking agent having such as an isocyanate group, a carbodiimide group or a metal alkoxide when the binder compound is provided

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with a hydroxyl group; a cross-linking agent having such as an isocyanate group, a carbodiimide group or an epoxy group when it is provided with a mercapto group; a cross-linking agent having such as an oxetane group, a carbodiimide group, an oxazine group or a metal alkoxide when it is provided with a carboxyl group; a cross-linking agent having such as an isocyanate group, an epoxy group, or an acid anhydride when it is provided with an amino group; a cross-linking agent having such as a mercapto group, an amino group, a carboxyl group or a sulfonic acid group when it is provided with an epoxy group; a cross-linking agent having such as a carboxyl group or a sulfonic acid group when it is provided with an oxetane group; a cross-linking agent having such as a hydroxyl group, a mercapto group or an amino group when it is provided with an isocyanate group; a cross-linking agent having such as a hydroxyl group, a mercapto group, a carboxyl group or a sulfonic acid group when it is provided with a carbodiimide group; a cross-linking agent having such as carboxyl group or a sulfonic group when it is provided with an oxazine group. Herein, a cross-linking agent may be either one originally provided with a functional group capable of reacting with a binder resin having reactive groups or one like a precursor which can generate a functional group by applying other energy such as heat or light.

With the exception of the reactions of the sulfonium compounds (sulfonic) with epoxy or oxetane groups/moieties, these reactions are not photocurable as required by step (i). The other reactions are thermally driven (heat) condensation-type reactions.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4,6-10,14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korishima et al. JP 05-046061, in view of Dhar et al. '551.

Korishima et al. JP 05-046061 teaches composition for forming volume holograms where a dye cation [0007] and a borate anion [0008-0010] are combined with a free radical polymerizable systems using ethylene based compounds such as acrylic or acrylate monomers [0012]. Example 1 uses a cyanine dyes with a triphenyl-butyl borate anoin combinaed with N,N-dimethylaniline, polyvinylbutyral, vinyl carboazole and 2-phenoxy acrylate coated on a glass plate. These were exposed using an 830 nm laser forming the interferences fringes and then finally cured using a halogen lamp thereby forming a reflection hologram. [00189-0022]. The sensitization is different from that of other photocurable composition, being much improved in the red and infrared. [0003-0004,0023]. Useful cyanine dyes including trimethine dyes (first formula), pentamethine dyes (second dye) and heptamethic dyes (third through fifth dyes) are disclosed [0007].

Dhar et al. '551 teach in example 1, an acrylate monomer and CGI-784 as the photoinitiator mixed with matrix precursors dibutyltin dilaurate, diisocyanate terminated polypropylene glycol and dihydroxypolypropylene glycol, which are heated (13/65-15). Examples 3 and 4 are similar and place the composition 270-290 microns between two 200

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micron glass slides with a spacer and after curing of the matrix are used to record holograms (the ratio is 0.675-0.725). The ability to form thick recording layers of more than 200 microns is disclosed. (3/13-19,4/3-12). Useful photoactive monomers including acrylates are disclosed as useful in this system. (6/51-67). A reduction in shrinkages of the hologram is also realized (7/1-48). The use of various reactions including hydrosilation, cationic epoxy polymerization, epoxy-amine, epoxy-mercaptan, isocyanate-hydroxyl and isocyanate-amine reactions and the like to form the matrix is disclosed. (6/26-50). The recording of holograms using 532 nm laser light is disclosed. (8/8).

It would have been obvious to one skilled in the art to modify the cited example of Korishima et al. JP 05-046061 by using the trimethine dye disclosed as the first dye in section [0007] and by adding the components to form an in-situ matrix and place the composition between two glass slides with a spacer of 200-500 microns to allow a thicker hologram to be formed and reduce shrinkage as discussed by Dhar et al. '551. Further it would have been obvious to use the resulting composition with a 532 nm laser, noting the use of this laser in recording a holograms by Dhar et al. '551.

The applicant apparently has interpreted the references as the N,N-dimethylaniline being the counter ion. This is not the case. Even casual review of formula (2) on page 4 of Korishima et al. JP 05-046061 shows the cyanine dye to be the counter ion. The examiner notes that cyanine dyes are specifically disclosed and claimed by the applicant. The positive charge (making it cationic) is shown on the nitrogen of the right pyridine ring of the cyanine dye. The applicants analysis is flawed on its face. The applicant argues that there is no motivation to use the dye/borate of the claims in the secondary references. The examiner holds that the modification

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asserted in the rejection is to add the precursors to allow the formation of the matrix and the thicker holographic recording medium, and starts form a reference using the dye/borate. There is a reasonable expectation of success found in the secondary references which use free radically curable systems with their matrix (such as acrylates) as does Korishima et al. JP 05-046061. **The closest prior art is Korishima et al. JP 05-046061, not Dhar et al.** Further, it is clear from Korishima et al. JP 05-046061 that the sensitivity will be different from other photoinitiation systems, as its sensitivity in the red and infrared is heightened. [0003-0004,0023]. Therefore the data asserted by the applicant's representative as unobvious is not. The rejection stands.

The applicant argues that Korishima et al. JP 05-046061 only exposes using IR light. This is sufficient to obviate the rejection for the methods claims, but not the claims directed to the medium. The claims to the medium are interpreted as only requiring sensitivity to 532 nm laser radiation. The position of the examiner is that the trimethine cyanine dye illustrated would render the composition sensitive to a doubled Nd:YAG laser, which emits at 532 nm. The examiner notes the trimethine cyanine dyes, C-5 through C11, disclosed in the instant application at page s 49-51. The examiner has previously addressed the issue of comparison with Korishima et al. JP 05-046061, rather than comparing with the secondary references, as the sensitivity is due to the photoinitiator/sensitizer, not the binder. It makes little sense to compare with a different class of photosensitizer and argues a difference when a more similar one is used in the prior art and the photosensitivity is based upon the sensitizer, not the binder/matrix. As this is the case, the comparison is not with the closest prior art and in the case of the claims directed to the composition commensurate in scope with the coverage sought. **The applicant is invited to**

compare with the trimethine cyanine dye identified above to establish unobvious results in comparison with the closest prior art.

The applicant argues that the examiner has improperly utilized "picking and choosing" as the standard. The examiner notes that Korishima et al. JP 05-046061 teaches the use of trimethine cyanine dyes as evidenced by the first dye shown on page 3, where it is disclosed as a cation useful with the borate anion. It is one of only five cyanine dyes exemplified, and so the implied argument that the examiner has chosen large list is without merit. Further, the composition is used to free radically cure an acrylic monomer in the composition at [0019]. Which is congruent with free radically based polymerizable materials used by Dhar et al. '551, who also discussed compatability issues in the table in column 9. Therefore the examiner believes the prior art to evidence both compatibility of the monomer with matrix/binder forming systems and provides a reasonable expectation of success.

6. Claims 1-4,6-10,14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korishima et al. JP 05-046061, in view of Dhar et al. '551 and Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988).

Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988) teaches the use of cyanine dye borate photoinitiators to cure acrylate based compositions. These are exposed using 532 nm light from a Nd:YAG laser and have a sensntivity across the visible spectrum while other photoinitiators are sensitive only to blue light

in the visible. (2326, left column). The polymerization is initiated by the generation of an alkyl or aryl radical

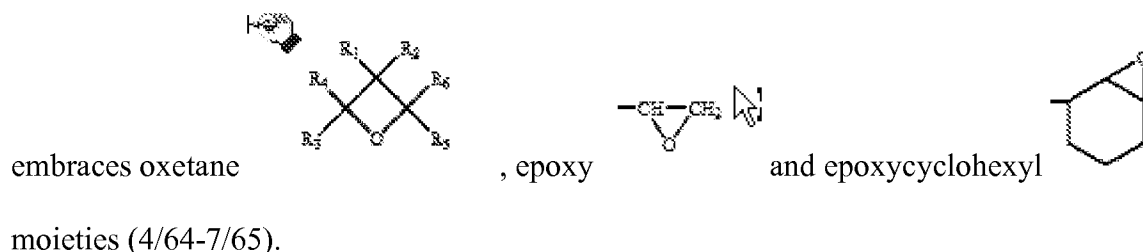
To address the embodiments bounded by the claims, where a YAG laser is used, the examiner cites Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988) to evidence that trimethine cyanine dye:borate complexes sensitize photopolymerizable compositions to the visible range including 532 nm, which is also disclosed as useful in recording holograms by Dhar et al. '551.

The applicant fails to appreciate that Chatterjee et al. is not relied upon to teach the use of cyanine dye:borate photoinitiators in holographic composition, but is instead relied upon to buttress the statements of the examiner that the resulting composition would be photosensitive to 532 nm laser light and therefore would not require a change in the laser form that used by Dhar et al. '551.

7. Claims 1-4,6-10,14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korishima et al. JP 05-046061, in view of Dhar et al. '551 and Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988), further in view of Ohkuma et al. '210.

Ohkuma et al. '210 teaches holographic recording composition including both photocurable cationically curable and photocurable free radically initiated systems, where either can be cured first (2/39-54). The cationically curable materials include cyclic ethers, which

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To address the issue of *photocurable* cationic curing of cyclic ethers, such as epoxies and oxetanes. independently from free radically curable monomer which rises from the binder recitation added to claims 18 and 20, the examiner examiner notes that Dhal et al. in the table in column 9 shows cationic epoxy curing to be independent and compatible with free radically curing (meth)acrylates, but does not discuss the photoinitiators for these. Ohkuma et al. '210 addresses this issue and further establishes that the separate curing of these photoreactions is known in the holographic arts.

The examiner holds that it would have been obvious to one skilled in the art to modify the processes and compositions rendered obvious by the combination of Korishima et al. JP 05-046061 with Dhar et al. '551 and Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988), by using cationic photoinitiators, such as the sulphonium salts taught by Ohkuma et al. '210, known in the holographic arts to initiate cationic polymerization without initiating free radical polymerization.

8. Claims 1-4,6-10,12,14,16,17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korishima et al. JP 05-046061, in view of Hegel et al. '008.

Hegel et al. '008 teach in example 1, an acrylate monomer and IRG-784 as the photoinitiator mixed with matrix precursors dibutyltin diacetate, diisocyanate terminated

polypropylene glycol and dihydroxypolypropylene glycol, which are placed between 1.2 mm APO substrates with a 500 micron spacer and after curing of the matrix [0031-0040] (this yields a ration of 02.8). The formation of holograms using these is disclosed. [0052-0056]. Useful photoactive monomers including acrylates are disclosed as useful in this system. [0029]. A reduction in shrinkages of the hologram is also realized. The provision of antireflection coatings on one or both of the substrates is disclosed. [0016,0018]. The substrates may be 0.5-1.3 mm thick [0019]. The use of various materials for the substrate, including glass and plastics, is disclosed. [0016].

It would have been obvious to one skilled in the art to modify the cited example of Korishima et al. JP 05-046061 by adding the components to form an in-situ matrix and place the composition between two glass slides with a spacer of 500 microns to allow a thicker hologram to be formed and reduce shrinkage as discussed by Hegel et al. '008. Further it would have been obvious to modify the resulting medium by having substrates of the same or different thicknesses on either side of the recording composition.

The rejection stands for the reasons above as no further arguments were directed at this rejection.

9. Claims 1-10 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korishima et al. JP 05-046061, in view of Dhar et al. '104.

Dhar et al. '104 teach in example 1, an acrylate monomer and CGI-784 as the photoinitiator mixed with matrix precursors dibutyltin dilaurate, diisocyanate terminated polypropylene glycol and dihydroxypolypropylene glycol [0091-0092], placed between two 750 micron PMMA discs with a 750 microns spacer and the matrix cured [0096-0101] (the ratio is

0.50) . The ability to form thick holographic recording layers of more than 200 microns is disclosed [0072]. Useful photoactive monomers including acrylates are disclosed as useful in this system [0030]. A reduction in shrinkage of holograms is also realized (7/1-48). The use of various reactions including hydrosilation, cationic epoxy polymerization, epoxy-amine, epoxy-mercaptan, isocyanate-hydroxyl and isocyanate-amine reactions and the like to form the matrix is disclosed. The matrix can also be made form polyols, which are fluorinated [0027]

It would have been obvious to one skilled in the art to modify the cited example of Korishima et al. JP 05-046061 by adding the components to form an insitu matrix and place the composition between two glass slides with a spacer of 200-500 microns to allow a thicker hologram to be formed and reduce shrinkage as discussed by Dhar et al. '104.

The rejection stands for the reasons above as no further arguments were directed at this rejection.

10. Claims 1-4,6-10,14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korishima et al. JP 05-046061, in view of Dhar et al. '551, further in view of Gottschalk et al. '541, Adair et al. '414 and Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988).

Gottschalk et al '541 teach the use of dye borate complexes to cure free radical polymerizable systems. The cationic dyes may be methine, polymethine, triarylmethane, indolene, thiazine, xanthene, oxazine, acridine, cyanine, carbocyanine, hemicyanine, rhodamine and azomethine dyes. (5/25-6/54). The initiation is described as more efficient because of the close association of the dye, which absorbs the light, and the borate anion, which generates the

free radical and facilitates the transfer of the energy from the excited dye to the borate. (3/4-14). The use of trimethine dyes is taught for dyes 1-3, 8 and 9 which describes their use with visible light of greater than 500 nm (4/16-19 and columns 7-10)

Adair et al. '414 teach the use of cationic transition metal complexes with borate anions to cure free radically polymerizable systems, where the ligands on the complexes can be pyridine, bipyridines, phenanthrolines (the latter have two chelation sites) and the like (4/37-6/49). The use of this initiator system to form holograms is disclosed (11/36-45).

To address the other embodiments bounded by the claims where the dye cations are not cyanine, the examiner holds that it would have been obvious to one skilled in the art to modify the composition rendered obvious by the combination of Korishima et al. JP 05-046061, and Dhar et al. '551 by using other known dye/borate photoinitiators such as those taught by Gottschalk et al. '541 or Adair et al. '414 with a reasonable expectation of the free radical components in the resulting combination being photocurable in the visible range based upon the common usage of free radically curable monomers in all the references and the disclosure that trimethine cyanine dyes:borate complexes are sensitive to 532 nm radiation by Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988). Further, it would have been obvious to one skilled in the art to modify the invention by using a 532 nm Yag laser to recod the hologram based upon the disclosed sensitivity of the dye borate compounds to this radiation in Gottschalk et al. '541, Adair et al. '414 and Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988) and the use of 532 nm laser to record

holograms by Dhar et al. '551. Noting that the spacing of the fringes and hence the replay wavelength is dependent upon the wavelength of the laser used in the recording process.

The applicant repeats the argument of the ammonium cation, which has been addressed above. The applicant also argues that the dyes of Adair et al. '414 are not within formula 2. The examiner points to fact that the ligands are not limited to those illustrated in section of the [0075] of the instant specification. The applicant could exclude the ligands of Adair et al. '414, but has chosen not to do so, so the position argued is flawed. Further based upon the fact that Gottschalk et al. teaches cyanine dye/ borate initiators, which embraces those of Korishima et al. JP 05-046061 and uses them for the same purpose (photoinitiation), the argument that they are not combinable by the applicant are unconvincing.

As discussed above, the applicant's analysis is flawed as it begins from the wrong reference. Specifically the Korishima et al. JP 05-046061 is the closest reference for the reasons discussed above. **The applicant is invited to compare with the trimethine cyanine dye identified above to establish unobvious results in comparison with the closest prior art.**

The rejection stands for the reasons above as no further arguments were directed at this rejection.

11. Claims 1-10, 12-14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korishima et al. JP 05-046061, in view of Dhar et al. '551, further in view of Gottschalk et al. '541, Adair et al. '414 and Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988), further in view of Hegel et al. '008 or Dhar et al. '104.

To address other embodiments bounded by the claims, the examiner holds that it would have been obvious to modify the media rendered obvious by the combination of Korishima et al. JP 05-046061 with Dhar et al. '551, Gottschalk et al. '541, Adair et al. '414 and Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988) by adding an AR coating to one of the substrates as taught by Hegel et al. '008 and/or to using other matrix materials such as the siloxane or fluorinated polyols taught by Dhar et al. '104 with a reasonable expectation of forming a useful holographic recording medium based upon the use of these features in holographic recording media in these references.

The rejection stands for the reasons above as no further arguments were directed at this rejection.

12. Claims 1-4,6-10 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korishima et al. JP 05-046061, in view of Dhar et al. '551, further in view of Gottschalk et al. '541, Adair et al. '414 and Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988), further in view of Horimai et al., WO 02/15176.

Horimai et al., WO 02/15176 (Hormai et al. '891 is US equivalent) teaches with respect to figure 1, a holographic recording medium which comprises a substrate (2), a holographic recording layer (photopolymers) (3), a second substrate (4) and a reflective layer (5). The reflective layer and the recording layer can be next to each other (12/5-23; 11/40-64). The interference fringes results from the interferences from the light passing through the layer toward

the reflective layer and that reflected back into the laser from the reflective layer. (col 5. ?; 4/53-5/7).

In addition to the basis provided above, it would have been obvious to one skilled in the art to modify the embodiments rendered obvious by the combination of Korishima et al. JP 05-046061, with of Dhar et al. '551, further in view of Gottschalk et al. '541, Adair et al. '414 and Chatterjee et al., "Electron transfer reactions in cyanine borate ion pairs: photopolymerization initiators sensitive to visible light", J. Am. Chem. Soc., Vol. 110(7) pp 2326-2328 (1988), further in view of as set forth above by adding a reflective layer on the further substrate as taught Horimai et al., WO 02/15176 to allow holographic recording without a second beam.

The rejection stands for the reasons above as no further arguments were directed at this rejection.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin J Angebranndt/
Primary Examiner, Art Unit 1795

Martin J Angebranndt
Primary Examiner
Art Unit 1795

3/6/2008